APPLICATION

FOR

UNITED STATES LETTERS PATENT

TITLE: IDENTIFYING MULTILINGUAL PARTICIPANTS
IN NETWORK COMMUNICATIONS

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IDENTIFYING MULTILINGUAL PARTICIPANTS IN NETWORK

COMMUNICATIONS

Background

This invention relates generally to establishing ad

5 hoc wireless networks.

Ad hoc wireless networks involve the establishment of

a communications session between a plurality of devices

operating under a common wireless communication protocol.

Examples of such wireless communication protocols include

10 the Bluetooth protocol (See the Specification of the

Bluetooth System, Version 1.1 (February 22, 2001) available

from the Bluetooth Special Interest Group) and the I.E.E.E.

802.11 protocol (See Institute of Electrical and

Electronics Engineers, Inc. (I.E.E.E.) Std. 802.11, 1999

15 Edition, "Wireless LAN Medium Access Control and Physical

Layer Specification" available from the I.E.E.E. Inc., New

York, New York 10016-5997, U.S.A.)

In an ad hoc wireless network, a plurality of users

may communicate with one another over a wireless link. The

20 participants may be ultimately linked over other types of

networks including the Internet. Conventionally, the ad

hoc wireless network is established using protocols that

search out and locate the participants. Once the

1

participants are enumerated, they may be identified on a display screen associated with each device.

Thus, in one example, wireless cell phones may communicate with personal computers, which in turn communicate over the Internet. Each participant in an ad hoc wireless network may automatically be provided with a screen display indicating the other participants.

Each of the participants may be identified in such displays by their text name. However, when participants from countries that use different character sets are involved, their native characters may not translate in all cases. For example, a person using English script in the United States who is communicating with someone in Japan may be unable to read the Japanese characters because the script to convert the Japanese characters to English characters may not be available on the English user's computer and vice versa.

In an ad hoc network in which only one user with a different character set is involved, by deduction, that user may be identified. However, when multiple users with incompatible character sets are involved, each of the users may be unable to determine which of the two incompatible character set users is which. Therefore, it may be difficult to fully utilize the ad hoc wireless network because the participants can not distinguish between the incompatible character set users and, therefore, may not

2

direct communication specifically to one or the other of those users. As a result, advantages of wireless ad hoc networks may be diminished in cases where incompatible character sets are involved.

5   Therefore, there is a need for a way to identify persons participating in ad hoc wireless networks between users with incompatible character sets.

Brief Description of the Drawings

Figure 1 is a schematic depiction of an ad hoc

10   wireless network in accordance with one embodiment of the present invention;

Figure 2 is an identifying screen display in accordance with the prior art;

Figure 3 is a depiction of a screen display in

15   accordance with one embodiment of the present invention;

Figure 4 is a depiction of a screen display in accordance with one embodiment of the present invention;

Figure 5 is a flow chart for SEND software in accordance with one embodiment of the present invention;

20   Figure 6 is a flow chart for RECEIVE software in accordance with one embodiment of the present invention; and

Figure 7 is a block depiction of a wireless communication terminal in accordance with one embodiment of

25   the present invention.

Detailed Description

Referring to Figure 1, an ad hoc wireless network may be set up at any time between a plurality of users having compatible systems. Thus, each of the users may have a

5   portable computer 14, which implements a wireless communication protocol between the portable computer 14 and the owner's cellular telephone 12 in one embodiment. Communications may be provided over the Internet 16. As a result, each of the plurality of users may establish a

10   communications session for an ad hoc wireless communication network, which enables any of the participants to communicate with one another. The link between the cellular telephone 12a and the personal computer 14a, for example, may be via an appropriate wireless protocol.

15   Examples of suitable wireless protocol include the Bluetooth protocol and the IEEE 802.11 protocol.

In the example illustrated in Figure 1, the owners of the cellular telephones 12c and 12d are in Japan and their personal computers 14c and 14d utilize the Japanese

20   character set. At the same time, the participants owning the cellular telephones 12a and 12b are in the United States and their owners have personal computers 14a and 14b which use the English character set. In this example, the personal computers 14a and 14b do not have the script to

25   convert the Japanese characters for display. As a result, as shown in Figure 2, a screen display 18 may automatically

4

reveal the participants in the ad hoc wireless network. Each participant may be identified by a cell phone symbol 20, in one embodiment, together with the participant's name. However, screen display 18, shown in association

5   with either of the personal computers 14a or 14b that do not include Japanese characters simply insert meaningless characters for the names of the Japanese participants because of the absence of suitable character set translation software on the personal computers 14a and 14b.

10   The same situation would exist for the Japanese participants if their computers did not have the software to convert the English text, but instead, solely handled Japanese character sets.

As a result, a participant in the United States having

15   the screen display 18 may not be able to identify which of the users is Yasuo and which of the users is Shoichi from the apparent information on the display 18. Therefore, it may not be easy to determine how to send a particular communication to one, but not both of those foreign

20   character set users.

Turning to Figure 3, a screen display 18a in accordance with one embodiment of the present invention may include identifying photographs 22 to identify each of the users. Thus, while the incompatible character sets may not

25   complete the correct names, the user images may be utilized to distinguish between the various users in one embodiment

5

of the present invention. In other embodiments, audio
files may be utilized to identify each user. For example,
each user may say the user's name and when any user clicks
on an image associated with a particular user, such as the
5   image 20a shown in Figure 2, the user's name will be played
back. In still another embodiment, each user may be
associated with an unique symbol that identifies the user.
In one such case, the unique symbol may be a depiction of
the user's name in a compatible character set. For
10   example, the Japanese user may provide a file which
includes the English characters for that user's name.

As shown in Figure 4, when the user clicks on one of
the cellular phone images 20 shown in Figure 2, a dropdown
menu 24 may appear. The user can then click on one of the
15   entries 26, such as the OPEN entry, to obtain more
information about the user. Alternatively, the user may
select the PLAY AUDIO entry to hear the user say the user's
name.

The SEND software 30 for implementing one embodiment
20   of the present invention, prompts the user to append a
textual interface as indicated in block 32 of Figure 5.
Thus, the user's personal computer may automatically append
the user's name for display on display screens 18
associated with personal computers 14 of other participants
25   in an ad hoc wireless network. In addition, the audible
interface may be appended as indicated in block 34. The

user may be asked, for example, through a graphical user interface, to provide an audible recording of the user's name. Next, the user may be asked to supply an image, for example, through a digital camera associated with the

5   personal computer 14, as indicated in block 36. Finally, one or more of the interface information may be automatically transmitted as indicated in block 38 to the other enumerated participants in the ad hoc wireless communication.

10   In Figure 6, each of the participants then receives a communication from the other participants using the software 40 in accordance with one embodiment of the present invention. As indicated in block 42, each participant's personal computer 14 receives and displays

15   textual identifiers. Similarly, a personal computer 14 receives and displays audible and image identifiers as indicated in block 44. Upon a request for audible identifiers, as determined at diamond 46, the audible identifier may be played as indicated in block 50. If,

20   instead, the user requests the image, as indicated in block 48, it may be displayed as well. Thus, in some embodiments, the screen display may be as shown in Figure 2 and the images are only provided upon request and selection. Similarly, the audible information may only be

25   provided upon request and selection.

Referring to Figure 7, in accordance with one embodiment of the present invention, each of the cellular telephones 12 may include a bus 56, which is coupled to a baseband processor 54 and a memory 58. A digital signal

5   processor (DSP) 60 may also be coupled to the bus 56, as well as over a bus 62 to a memory 64. An additional general-purpose processor 66 coupled to the bus 56 may have its own memory 68 in one embodiment. In one embodiment, the software 30 and 40 may be stored in that memory 68. In

10   other embodiments, the software 30 and 40 may be stored in the peripheral computers 14.

While the present invention has been described with respect to a limited number of embodiments, those skilled in the art will appreciate numerous modifications and

15   variations therefrom. It is intended that the appended claims cover all such modifications and variations as fall within the true spirit and scope of this present invention.

What is claimed is: